

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 April 2004 (08.04.2004)

PCT

(10) International Publication Number
WO 2004/029125 A1

(51) International Patent Classification⁷: **C08G 18/48**,
18/66, A61K 47/34, C08G 18/32

Blantyre G72 0XU (GB). STEWART, Sarah [GB/GB];
9 St. Johns Terrace, Mannofield, Aberdeen AB15 7PH
(GB).

(21) International Application Number:
PCT/GB2003/004208

(74) Agents: MACDOUGALL, Donald, Carmichael et al.;
Cruikshank & Fairweather, 19 Royal Exchange Square,
Glasgow G1 3AE (GB).

(22) International Filing Date:
26 September 2003 (26.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0222522.5 27 September 2002 (27.09.2002) GB

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,
SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*): CON-
TROLLED THERAPEUTICS (SCOTLAND) LIM-
ITED [GB/GB]; Redwood Place, 1 Park Campus, East
Kilbride G74 5PB (GB).

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): HALLIDAY,
Janet, A. [GB/GB]; 5 Dundas Street, Bo'ness, West
Lothian EH52 0DF (GB). TUOMINEN, Jukka [FI/GB];
30 Stobo, Calderwood, East Kilbride G74 3HL (GB).
LIVINGSTONE, Mark [GB/GB]; 7 Chestnut Gardens,
Stanecastle, Irvine KA11 1RW (GB). KOPPENHAGEN,
Frank [NL/GB]; 1 Taverners Road, Leicester LE4 2HZ
(GB). CURRIE, Lillias [GB/GB]; 149 Auchinraith Road,

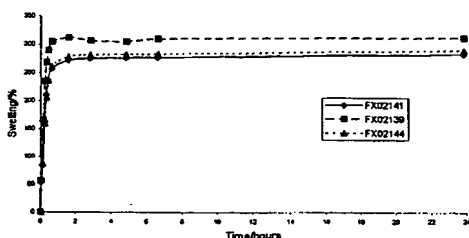
Published:

— with international search report

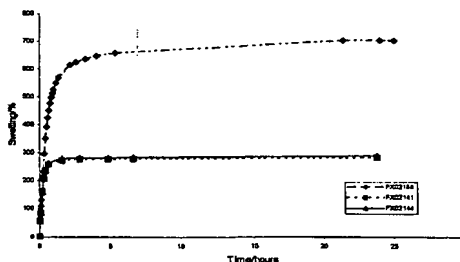
For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: WATER-SWELLABLE POLYMERS

Percentage Swelling Over Time of Two New Polymers (FX02141
and FX02144) Compared With Original Polymer (FX02139)



Percentage Swelling Over Time of Three New Polymers



(57) **Abstract:** A water-swellaible linear polyurethane polymer is formed by reacting a polyethylene oxide (e.g. PEG 4000 to 35,000), a difunctional compound (e.g. a diamine or diol such as 1,10-decanediol) with a diisocyanate. The ratio of the three components is generally in the range 0.1-1.5 to 1 to 1.1 - 2.5. The polyurethane is water-swellaible in the range 300 to 1700 % and soluble in certain organic solvents such as dichloromethane. It can be loaded with pharmaceutically active agents, particularly of high molecular weight, to produce controlled release compositions, such as pessaries etc.